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09/737,328

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David Brian Zaun

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10/28/2004

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EXAMINER

SEFCHECK, GREGORY B

ART UNIT

PAPER NUMBER

2662

DATE MAILED: 10/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/737,328

Applicant(s)

ZAUN ET AL.

Examiner

Gregory B Sefcheck

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 10-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 10-59 is/are rejected.
- 7) ☒ Claim(s) 29 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>5/25/2004</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

- Applicant's Amendment filed 7/12/2004 is acknowledged.
- The previous rejection under 35 USC 101 is withdrawn in light of the Amendment.
- Claims 1-6 have been amended, Claims 7-9 have been cancelled, Claims 10-59 have been added.
- Claims 1-6 and 10-59 are pending.

### ***Claim Objections***

1. Claim 29 is objected to because of the following informalities:

Claim 29 depends from "the method of claim 12", while claim 12 is an apparatus claim depending from claim 1. For examining purposes, it is assumed claim 29 is dependent on claim 24.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 36, 51-53 and 56-59 are rejected under 35 U.S.C. 102(e) as being anticipated by Magee et al. (US006002687A), hereafter Magee.

- In regards to Claims 36, 51-53 and 56-59,

Magee discloses an MPEG transport stream remultiplexer having an input data link module 110 controlled by a main processor 131 (Title; Fig. 2; claim 36,51 – remultiplexer module comprising an input processor controlled by a host processor in a packet processing system).

Referring to Fig. 3, Magee further discloses the input data link module stores packets in Buffer 222 before transferring to one of the remultiplexed output streams based on the packet identifier (PID) of the packet. This selective storing and transferring is based on a packet's PID and performed based on the contents of the PID RAM 220 (Fig. 3; claim 36,51 – packet buffer; claim 36,51 – input processor stores a packet in the packet buffer if the packet has an identifier listed in the packet identifier table; claim 36,52 – output processor that reads packet and selectively adds to one of two or more output streams).

Magee also discloses storing a PCR flag to indicate that a PCR is present in a packet (Col. 15, lines 5-12; claim 51,59 – packet buffer stores a PCR flag for each stored packet).

Magee discloses that the data link module includes a PCR fixer circuit that records a time stamp for each received transport packet bearing a PCR (Col. 7, lines

27-34; claim 56 – time reference generator for input processor to associate a time stamp with each packet).

Referring to Figs. 3 and 4, Magee discloses PCR fixer circuit accounts for unwanted jitter by determining a “dwell time” of delay incurred within the multiplexer from the recorded and current time of the local clock and adjusting the PCR of the packet to reflect this “dwell time” before it is remultiplexed into one of the output streams with a newly assigned PID (Col. 7, lines 34-42; Col. 12, lines 30-67; Col. 14, line 22; claim 52 – output processor that reads packets from packet buffer and selectively adds packets to one of two or more output data streams; claim 57 – output processor uses time stamps to calculate an amount of time taken to pass a particular packet; claim 58 – output processor comprises PCR correction circuitry that removes PCR jitter using the amount of time taken to pass a particular packet; claim 51 – input processor comprises PCR detector that flags packets containing PCR data).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6, 11-21, 24, 25, 27-33, 37, 38, 40-48, 54, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Magee in view of Rao (US005506844A).

- In regards to Claims 1-6, 24, 25, 37, 38, 54, and 55,

Magee discloses an MPEG transport stream remultiplexer having an input data link module 110 controlled by a main processor 131 (Title; Fig. 2; claim 1,24 – method and remultiplexer module comprising an input processor controlled by a host processor in a packet processing system) that covers all limitations of any parent claims.

Referring to Fig. 3, Magee further discloses the input data link module stores packets in Buffer 222 before transferring to one of the remultiplexed output streams based on the packet identifier (PID) of the packet. This selective storing and transferring is based on a packet's PID and performed based on the contents of the dual-port accessible PID RAM 220 (Fig. 3; claim 1 – packet buffer; claim 1,24 – input processor stores a packet in the packet buffer if the packet has an identifier listed in the packet identifier table; claim 2 – table is constructed as a multi-port accessible memory; claim 3 – multi-port accessible memory is a dual-port accessible memory; claim 4 – memory is partitioned into two portions to form the active table and the pending table).

Magee does not explicitly disclose a table stored in a dual port accessible memory comprising active and pending tables such that the active table is used by the input processor to select packets for storage while the pending table can be modified by the host processor while the active table is being used by the input processor. Magee also does not show a switching mechanism for swapping the tables by modifying a control bit in the input processor.

Rao discloses a data-identifying table in a multiplexing system (Abstract).

Referring to Fig. 3, Rao shows a first table that is used by the encoders 302 to control the processing of data input to the multiplexer 300 (Col. 6, lines 15-38; claim 1,24,37,54 – active table containing values used by the input processor to select packets for storage in an input packet data stream). Rao further shows a second table that is built while the first table is being used to select packets. This new table contains the values to be used by the encoders 302 for processing the input data over the next processing window (Col. 6-7, lines 60-12; claim 1,24,37,54 – pending table containing values that can be modified by the host processor while the active table is being used by the input processor).

Rao shows that the multiplexer switches from the first table to the second table for processing input data in the next processing window (Col. 7, lines 5-12; claim 5,25,38,55 – switching mechanism allowing the host processor to switch the active table into a current pending table and switch the pending table into a current active table).

Rao shows that the switching mechanism for switching between the values of the first table and the values of the second table includes the CPU 312 of the multiplexer 300 modifying a control bit in the encoder (Col. 14, lines 32-40; claim 6 – switching mechanism includes modifying a control bit in the input processor via the host processor).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and remultiplexer of Magee with a PID table having a switchable active table and a pending table in a dual port accessible memory, as shown

by Rao. This modification would enable changes to be made to the PID information in the pending table while the active table is being used, enabling dynamic operation of the remultiplexer without interruption.

- In regards to Claim 11, 27, and 40,

Magee discloses an MPEG transport stream remultiplexer that covers all limitations of the parent claim.

Magee discloses the DLM input state machine 218 operable to monitor the received data for errors. If errors are detected for a received packet, the circuitry for storing the packet is not enabled (Col. 13, lines 42-53; claim 11,27,40 – control logic that detects a transport error in a packet for disabling the writing of the packet to the buffer).

- In regards to Claims 12-19, 28-33, and 41-46,

Magee discloses an MPEG transport stream remultiplexer and method that covers all limitations of the parent claim.

Magee discloses that the data link module includes a PCR fixer circuit that records a time stamp for each received transport packet bearing a PCR (Col. 7, lines 27-34; claim 12,28 – time reference generator for input processor to associate a time



stamp with each packet; claim 13,41 – time stamp is generated for a particular packet when a last byte of that packet is received by input processor).

Referring to Figs. 3 and 4, PCR fixer circuit accounts for unwanted jitter by determining a “dwell time” of delay incurred within the multiplexer from the recorded and current time of the local clock and adjusting the PCR of the packet to reflect this “dwell time” before it is remultiplexed into one of the output streams with a newly assigned PID (Col. 7, lines 34-42; Col. 12, lines 30-67; Col. 14, line 22; claim 14,18,29,32 – output processor that reads packets from packet buffer and selectively adds packets to one of two or more output data streams; claim 14,29,42 – output processor uses time stamps to calculate an amount of time taken to pass a particular packet; claim 15,29,43 – output processor comprises PCR correction circuitry that removes PCR jitter using the amount of time taken to pass a particular packet; claim 16,30,44 – input processor comprises PCR detector that flags packets containing PCR data; claim 17,31,45 – PCR correction circuitry in output processor extracts PCR data from packets flagged as containing PCR data; claim 19,33,46 – output processor assigns new PID to packets).

- In regards to Claims 20 and 47,

Magee discloses an MPEG transport stream remultiplexer that covers all limitations of the parent claim.

Magee shows that each packet stored comprises an input time stamp, PID and packet data (Col. 2, lines 22-33; claim 20,47 – packet buffer stores an input timestamp, a PID, and the packet data).

- In regards to Claims 21 and 48,

Magee discloses an MPEG transport stream remultiplexer that covers all limitations of the parent claim.

Magee discloses storing a PCR flag to indicate that a PCR is present in a packet (Col. 15, lines 5-12; claim 21,48 – packet buffer stores a PCR flag for each stored packet).

6. Claims 10 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Magee in view of Rao further in view of Meyer et al. (US005896414A), hereafter Meyer.

- In regards to Claims 10 and 26,

Magee discloses an MPEG transport stream remultiplexer that covers all limitations of the parent claim.

Magee does not explicitly show detecting a length of a packet and overwriting packets having an incorrect length.

Meyer discloses control channel communications for an information distribution system. Meyer discloses use in an MPEG environment, where writing to a memory is controlled based upon detecting the correct length of a received packet (Col. 5, lines 48-67; claim 10,26 – control logic that detects a length of a packet being written to the packet buffer and overwrites the packet if the length is incorrect).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and module of Magee by overwriting packets in the buffer that are detected to have an incorrect length, as shown by Meyer. This is just one example of an errored packet handled by the packet processing system disclosed by Magee, which would ensure all packets in the buffer are within the specifications of the system.

7. Claims 22, 23, 34, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Magee in view of Rao further in view of Lin (US005764641A).

- In regards to Claims 22, 23, 34, and 35,

Magee discloses an MPEG transport stream remultiplexer that covers all limitations of the parent claim.

Magee does not explicitly disclose identifying a priority status of packets such that only priority packets are stored if the buffer is filled to half its limit.

Lin discloses an early and integrated tail packet discard system (Title). Lin discloses the use of a CLP (priority status) in received MPEG packets to selectively disable the writing of lower-priority packets to save room in its buffers for higher-priority data (Col. 2, lines 20-36; claim 22,34 – PID table identifies priority status of packets such that only priority packets are stored if buffer is filled to a predetermined point). Methods of preventing buffer overflow by establishing thresholds are well-known in the art, with the predetermined thresholds being set at any appropriate level dependent on the particular use of the buffer in a packet processing system (claim 23,35 – predetermined point is half full).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and module of Magee by identifying priority status of packets, as shown by Lin. This modification would enable only the most important packets to be stored in the buffer as the buffer reaches its storage limit, thereby maximizing the available buffer space and the quality of processed packet streams in the system.

8. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Magee in view of Meyer.

- In regards to Claim 39,

Magee discloses an MPEG transport stream remultiplexer that covers all limitations of the parent claim.

Magee does not explicitly show detecting a length of a packet and overwriting packets having an incorrect length.

Meyer discloses control channel communications for an information distribution system. Meyer discloses use in an MPEG environment, where writing to a memory is controlled based upon detecting the correct length of a received packet (Col. 5, lines 48-67; claim 10,26,39 – control logic that detects a length of a packet being written to the packet buffer and overwrites the packet if the length is incorrect).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and module of Magee by overwriting packets in the buffer that are detected to have an incorrect length, as shown by Meyer. This is just one example of an errored packet handled by the packet processing system disclosed by Magee, which would ensure all packets in the buffer are within the specifications of the system.

9. Claims 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Magee in view of Lin (US005764641A).

- In regards to Claims 49 and 50,

Magee discloses an MPEG transport stream remultiplexer that covers all limitations of the parent claim.

Magee does not explicitly disclose identifying a priority status of packets such that only priority packets are stored if the buffer is filled to half its limit.

Lin discloses an early and integrated tail packet discard system (Title). Lin discloses the use of a CLP (priority status) in received MPEG packets to selectively disable the writing of lower-priority packets to save room in its buffers for higher-priority data (Col. 2, lines 20-36; claim 49 – PID table identifies priority status of packets such that only priority packets are stored if buffer is filled to a predetermined point). Methods of preventing buffer overflow by establishing thresholds are well-known in the art, with the predetermined thresholds being set at any appropriate level dependent on the particular use of the buffer in a packet processing system (claim 50 – predetermined point is half full).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and module of Magee by identifying priority status of packets, as shown by Lin. This modification would enable only the most important packets to be stored in the buffer as the buffer reaches its storage limit, thereby maximizing the available buffer space and the quality of processed packet streams in the system.

***Response to Arguments***

10. Applicant's arguments with respect to claims 1-6 and 10-59 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


- Brunheroto et al. (US006643298B1) discloses a method and apparatus for MPEG-2 program ID re-mapping for multiplexing several programs into a single transport stream
- Sato (US006538999B1) discloses a PID filter circuit and FIFO circuit
- Komi et al. (US006477185B1) discloses a demultiplexing and decoding apparatus for coded audio and video data
- Cukier et al. (US006175570B1) discloses a method and apparatus for shaping the output traffic in a fixed length cell switching network node

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory B Sefcheck whose telephone number is 571-272-3098. The examiner can normally be reached on Monday-Friday, 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GBS  
10-22-2004



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